Claims

1. A method of treating a titanium metal implant for use in a surgical procedure, so as to form a surface layer that is integral with the metal substrate and which incorporates a biocidal material, wherein the method comprises anodising the implant at a voltage above 50 V for a period of at least 30 min, so as to generate a surface layer, and then performing ion exchange so as to incorporate ions of a biocidal metal into the surface layer.

2. A method as claimed in claim 1 wherein the anodising is performed so as to generate a dense hard surface layer and also shallow pits in the surface which are filled with a somewhat softer and more porous material, and wherein the magnitude of the anodising voltage and its duration are controlled, so as to control the number and size of the shallow pits.

3. A method as claimed in claim 1 or claim 2 wherein the the biocidal metal is silver.

4. A method as claimed in any one of the preceding claims wherein the anodising step uses an electrolyte comprising phosphoric acid.

5. A method as claimed in claim 4 wherein the phosphoric acid is of concentration between 5% and 20% by weight.

6. A method as claimed in claim 4 or claim 5 wherein the electrolyte comprises chloride ions at a concentration no more than 500 ppm.